

AMENDMENT
U.S. Appln. No. 09/897,436

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1 (currently amended): A procedure process for fluidized bed cracking of a hydrocarbon charge, comprising a step of circulating in which cooling particles, which may optionally be catalytic, circulate in two successive reaction chambers (1; 16), in each of which they the cooling particles are put into contact with at least one cut of hydrocarbons, and the reaction effluents from each of said the reaction chambers (1; 16) are directed towards one and the same fractionating unit, characterized in that wherein the effluents from each of the reaction chambers (1; 16) are eracked fractionated in part separately in the same partially partitioned fractionating column (12), and in that further wherein at least one cut (13, 44a) obtained through separately eracking fractionating the effluents of one of the two reaction chambers (1; 16) is, as a whole or in part, reinjected into the other chamber.

Claim 2 (currently amended): A procedure process in accordance with Claim 1, characterized in that wherein the hydrocarbons injected into the first reaction chamber (1) remain therein for a shorter period of time that than the hydrocarbons injected into the second reaction chamber (16).

Claim 3 (currently amended): A procedure process in accordance with Claim 1, characterized in that wherein the hydrocarbons injected into the first reaction chamber (1) remain therein for between 0.05 and 5 seconds, preferably between 0.1 and 1 second.

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Claim 4 (currently amended): A procedure process in accordance with Claim 1, ~~characterized in that wherein~~ the hydrocarbons injected into the second reaction chamber (16) remain therein for between 0.1 and 10 seconds, ~~preferably between 0.4 and 5 seconds.~~

Claim 5 (currently amended): A procedure process in accordance with Claim 1, ~~characterized in that wherein~~ the charge and the parts cooling particles flow in an essentially downward direction in the first reaction chamber (1).

Claim 6 (currently amended): A procedure process in accordance with ~~any one of the preceding Claims~~ Claim 1, ~~characterized in that wherein~~ the charge and the parts cooling particles flow in an essentially upward direction in the second reaction chamber (16).

Claim 7 (currently amended): A procedure process in accordance with Claim 1, ~~characterized in that wherein~~, in said partially partitioned fractionating column (12), the heaviest effluents from each of the two reaction chambers are ~~cracked fractionated~~ separately, whereas the lightest effluents are combined.

Claim 8 (currently amended): A procedure process in accordance with Claim 7, ~~characterized in that wherein~~ said cut (13), which is obtained through separately ~~cracking fractionating~~ the effluents of one of the reaction chambers and which is, as a whole or in part, reinjected into the other chamber, contains at least one member selected from the group consisting of slurry, ~~and/or~~ a heavy distillate of the type HCO, ~~and/or~~ a cut of the type diesel oil, such as LCO.

Claim 9 (currently amended): A procedure process in accordance with Claim 7, ~~characterized in that wherein~~ at least one cut (13) obtained through separately ~~cracking fractionating~~ the heaviest effluents of the first reaction chamber (1) is, as a whole or in part, reinjected into the second reaction chamber (16).

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Claim 10 (currently amended): A procedure process in accordance with Claim 1, characterized in that wherein, in said partially partitioned fractionating column (12), the lightest effluents from each of the two reaction chambers are cracked fractionated separately, whereas the heaviest effluents are combined.

Claim 11 (currently amended): A procedure process in accordance with Claim 10, characterized in that wherein said cut (44a), which is obtained through separately cracking fractionating the effluents of one of the reaction chambers and which is, as a whole or in part, reinjected into the other chamber, contains gasoline.

Claim 12 (currently amended): A procedure process in accordance with Claim 10, characterized in that wherein at least one cut (44a) obtained through separately cracking fractionating the lightest effluents of the second reaction chamber (16) is, as a whole or in part, reinjected into the first reaction chamber (1).

Claim 13 (currently amended): A procedure process in accordance with Claim 1, characterized in that wherein said cut (13; 44a), which is obtained through separately cracking fractionating the effluents from one of the reaction chambers and which is, as a whole or in part, reinjected into the other chamber, is, prior to such reinjection, combined with other hydrocarbon cuts.

Claim 14 (currently amended): A procedure process in accordance with Claim 1, characterized in that wherein said cut (13 ; 44a), which is obtained through separately cracking fractionating the effluents from one of the reaction chambers and which is, as a whole or in part, reinjected into the other chamber, is, prior to such reinjection, subject to one or more intermediate treatments.

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Claim 15 (currently amended): A procedure process in accordance with Claim 14, characterized in that wherein said intermediate treatment includes is selected from the group consisting of a hydrotreatment, e.g. hydrogenation, a hydrodearomatization, a hydrodesulfurization, and a hydrodeazotation.

Claim 16 (currently amended): A procedure process in accordance with Claim 1, characterized in that wherein an auxiliary quantity of cooling particles from a regenerator (23) are introduced upstream from the second reaction chamber (16), in addition to the cooling particles from the first reaction chamber (1) an auxiliary quantity of particles from the regenerator (23) are introduced.

Claim 17 (withdrawn-currently amended): A device for the fluidized bed cracking of a hydrocarbon charge using two reaction chambers (1 ; 16) linked together by a means (10) for the transfer of cooling particles, a fractionating column (12) and conduits (7 ; 18) to supply the hydrocarbonated effluents from each of the two chambers (1 ; 16) to said fractionating column (12), characterized in that:

- said fractionating column (12) has, internally, at least two different areas: a first partitioned fractionating area (40) in the form of two compartments (38 ; 39), each of which communicates with a second common fractionating area (41);
- the conduits (7; 18) for the supply of effluents from the first and the second reaction chamber (1 ; 16) terminate, respectively, in the first and second compartment (39 ; 38) of said partitioned fractionating area (40);
- means (13 ; 44a) are provided for recycling and injecting, into one of the reaction chambers (1 ; 16) of at least one cut drawn off from the partitioned fractionating compartment of the effluents of the other reaction chamber; and
- each of the two chambers (1; 16) is independently selected from the group consisting of a chamber provided in the form of a notably vertical reactor with downward flow known by the

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name of "downer" and a chamber provided in the form of a notably vertical reactor with upward flow known by the name of "riser."

Claim 18 (withdrawn): A device in accordance with Claim 17, characterized in that said reaction chambers (1 ; 16) are different.

Claim 19 (withdrawn): A device in accordance with Claim 17, characterized in that the first reaction chamber (1) is provided in the form of a notably vertical reactor with downward flow known by the name of "downer."

Claim 20 (withdrawn): A device in accordance with Claim 17, characterized in that the second reaction chamber (16) is provided in the form of a notably vertical reaction with upward flow known by the name of "riser."

Claim 21 (withdrawn): A device in accordance with Claim 17, characterized in that the partitioned fractionating area (40) corresponds to the lower part of the fractionating column (12).

Claim 22 (withdrawn): A device in accordance with Claim 21, characterized in that the partitioned fractionating area (40) is separated into two compartments (38 ; 39) by using a notably vertical separation means (37 ; 37') extending from the back of the fractionating column (12) over a part of the height of the same.

Claim 23 (withdrawn): A device in accordance with Claim 21, characterized in that the partitioned fractionating area (40) is separated into two compartments (38 ; 39) by using a notably horizontal separation means in the form of a plate (37'') extending over a horizontal section of the column (12) and provided with one or several chimneys (50) permitting the passage towards the top, towards the common fractionating area (41), of the light effluents from the compartment (38) below said plate (37'').

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Claim 24 (withdrawn): A device in accordance with Claim 17, characterized in that the partitioned fractionating area (40) corresponds to the upper part of the fractionating column (12).

Claim 25 (withdrawn): A device in accordance with Claim 24, characterized in that the partitioned fractionating area (40) is separated into two compartments (38 ; 39) by using a notably vertical separation means (37 ; 37') extending from the head of the fractionating column (12) over a part of the height of the same.

Claim 26 (withdrawn): A device in accordance with Claim 24, characterized in that the partitioned fractionating area (40) is separated into two compartments (38 ; 39) by using a notably horizontal separation means in the form of a plate (37'') extending over a horizontal section of the column (12) and provided with one or several chimneys (50) permitting the passage towards the bottom, towards the common fractionating area (41), of the heavy effluents from the compartment (39) above said plate (37'').

Claim 27 (withdrawn): A device in accordance with Claim 22, characterized in that said separation means is provided in the form of a plane vertical wall (37).

Claim 28 (withdrawn): A device in accordance with Claim 22, characterized in that said separation means is provided in the form of a cylinder-shaped vertical wall (37') whose axis of revolution runs parallel to the longitudinal axis of the fractionating column (12).

Claim 29 (new): A process in accordance with Claim 1, wherein the cooling particles are catalytic.

Claim 30 (new): A process in accordance with Claim 3, wherein the hydrocarbons injected into the first reaction chamber (1) remain therein for between 0.1 and 1 second.

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Claim 31 (new): A process in accordance with Claim 4, wherein the hydrocarbons injected into the second reaction chamber (16) remain therein for between 0.4 and 5 seconds.

Claim 32 (new): A process in accordance with Claim 8, wherein said diesel oil is LCO.

Claim 33 (new): A process in accordance with Claim 15, wherein said hydrotreatment is hydrogenation.